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## NOTES ON ORIENTAL BABIES

By EDITH ELMER WOOD

During a residence of nearly two years in China, Japan, and Korea, the writer made some study of the size and growth of native children under six years of age. She weighed and measured a number of those who figure in the accompanying tables, and the rest were weighed and measured at her request by Dr Mary H. Fulton of Canton, Dr Edgerton H. Hart of Wuhu, and Dr Mary A. Suganuma of Nagasaki, to whom she now takes pleasure in acknowledging her obligation.

Owing to the superstitious fears of the parents, only ten Korean children were measured — from six months to five years of age — and none was weighed. The measurements, so far as they go, indicate larger children and less variation from the average than among either Chinese or Japanese. The bodily proportions are remarkably like those of occidental children. Adult Koreans are of decidedly larger stature than Japanese or southern Chinese, but it is impossible to speak more precisely, as statistics concerning them are entirely lacking.

Comparison with occidental children is rendered difficult by the paucity of reliable data for the ages between birth and six years. School children, both in Europe and America, have been weighed and measured by thousands, but below the school age they have been studied only by twos and threes, or at most by tens and twenties. For height and weight the writer referred to the Italian averages of Pagliani (three years and over), the Belgian of Quetelet, the German of Beneke and Camerer, the English of the Anthropometric Committee (fragmentary under four years), the American of Peck (four years and over), the individual records made by Dr Hall and Dr Shinn, and to an unpublished record of her own three sons. For height alone she had the figures of d'Espine and Picot in France, of Russow in Russia, of Daffner, Oppenheim, and Von Lange in Germany, and of Liharžik in Austria. For weight alone,

Fleischmann's and Hähner's. For the other bodily proportions she had at her disposal only the record of her own boys, the chest, arm, and foot measurements of Quetelet, the chest and skull measurements of Daffner, and a few scattering figures from Galton's report (English Anthropometric Committee) and from Hall.

Comparison with this body of statistics indicates, as might have been expected, that Japanese babies under two years average smaller than European or American. A little later they seem to have a period of more rapid growth; for the fifteen Japanese children of two years and over, with an average age of four years and four months, have an average height of 94.1 centimeters, which lifts them above the French, Italian, and Belgian children of like age and puts them about on a level with the German.

The children in the Chinese table under two years of age average about as much taller than the Japanese as one would expect from the relative height of the adults. But between two and four years the Chinese are slightly smaller, and between four and six very markedly smaller than the Japanese. The Chinese average falls so far behind any European standard for the ages of three, four, and five as to suggest an arrest of growth following weaning, when the child for the first time shares the insufficient nourishment of the family. The age of weaning is extremely late, two years being about the average.

Either the undersized Chinese children die off or a period of very rapid growth occurs later, for the adult southern Chinese is taller than the Japanese and only slightly shorter than the Italian or the southern French. Compare in this connection Ball's measurements of 1000 male prisoners in the Hong Kong jail (average height 1620 millimeters) and 100 female prisoners (average height 1510 millimeters) with Bälz's measurements of 2500 Japanese (average height of men 1585 millimeters and of women 1465).

In weight the Chinese children appear to make a better showing than in height; but it must be remembered that all the heights recorded are of Cantonese children, while thirteen out of the eighteen weights are of Wuhu children, who are probably larger in every way, as the adults undoubtedly are. Physical, temperamental, and linguistic differences between southern, central, and

northern Chinese are fully as marked as between the different Aryan races of Europe.

Bälz found that the adult Japanese is considerably heavier, relatively to his height, than the adult European. This seems to be true of the children, but in a less marked degree. Taking the fourteen who were weighed, whose average age is three years and ten months, a comparison of their combined weights and heights shows a trifle over 15.7 grams to the millimeter. Beneke's German children of four years (German adults are, according to Ranke, among the heaviest of Europeans proportionately to their height) show 15.2 grams to the millimeter, and Quetelet's Belgian children 15.1, while Pagliani's Italian children are proportionately lighter (14.5 grams).

Bälz confirms the common observation that adult Japanese have a larger head, longer spine, and shorter arms and legs, in proportion, than any European race. This does not seem to be true of the children except as to arms. Skull and spine measurements actually average less in proportion than those of the European and American children at the writer's disposal.

The bodily proportions of adult Chinese are largely conjectural, the only available data on the subject being measurements of twenty Chefoo men made by the Austrian scientific expedition on the *Novara* and embodied in Dr Weisbach's report. It is difficult to see on what ground Ranke and others assume that Chinese proportions are the same as Japanese. That they have the general characteristics of large head, long spine, and short limbs peculiar to races of ancient civilization is very probable; but the writer is convinced that they do not share the extreme short-leggedness of the Japanese, which is probably due to the national habit of kneeling with the body resting on the heels—a position which must seriously cramp the muscles and interfere with the development of the legs. The Chinese normally sit on chairs and stools, and while the coolies sometimes squat, they never kneel.

The children in the Chinese table show a proportionately longer spine and larger skull than Japanese or occidental children, but it is the exceedingly small ones who bring up the average. The larger and healthier Chinese children (numbers 3, 9, and 41, for instance) are proportioned remarkably like occidentals.

The excessive variability of the Chinese children, both in height and in bodily proportions, as compared either with Japanese or occidentals, is doubtless due—as it is all a variability *downward*, a prevalence of undersized children—to malnutrition and unhygienic conditions of life. Canton is an overcrowded and extremely dirty city, and considering how markedly the size of children among occidentals is affected by density of population, it is likely that Chinese country children would make a better showing.

It would be interesting to know whether many centuries of foot-binding have had any effect in stunting the development of the unbound Chinese foot. The average length of foot expressed in relation to height for all the Chinese children in the table is 15.8 percent, exactly the same as for all the Japanese. The European average derived from Daffner and Quetelet also lies between fifteen and sixteen percent. Of the forty-six Chinese children whose feet were measured, twelve are marked as belonging to the boat population, coolie, or artisan class, who do not bind their feet, twelve are credited to the middle and upper classes, and in the case of the remaining twenty-two the class to which the parents belong is left uncertain. Even in the upper classes the hereditary tendency, if it exists, must be diluted by the frequent introduction of secondary wives of low rank—often slave girls—whose children are, however, entirely legitimate and inherit the family name and fortunes. The feet of the twelve children marked as belonging to the middle and upper classes have an average length of  $15\frac{1}{2}$  percent of their height, while the feet of the ten coolie children whose proportion to their height is obtainable, average  $16\frac{1}{2}$  percent. It is doubtful whether the difference is greater than would exist between the upper and lower classes in any country.

The observations on dentition show the widest departure from occidental standards. The time for the appearance of the first incisors seems rather late, and with the Japanese the whole process of acquiring the milk-teeth is a slow one. The table shows it complete in one two-year-old, but incomplete in all the three-year-olds and four-year-olds and in four out of seven five-year-olds. With the Chinese, on the other hand, the process, once begun, seems to go forward very rapidly, there being only two instances out of

TABLE I.—CHINESE OF CANTON

AGE.	SEX.	WEIGHT (kg.)	HEIGHT (cm.)	Spine (cm.)	Chest (cm.)	Skull (cm.)	Arm (cm.)	Foot (cm.)	No. OF TEETH.	PARENTAGE.	
										HEALTH, ETC.	Middle class.
1 I day.	M	—	50.8	30.5	31.8	30.5	—	5.1	0	Sore eyes.	Upper class.
2 2 ms.	F	—	48.3	27.9	30.5	30.5	—	7.6	0	Healthy.	Boat woman's child. <sup>1</sup>
3 4	F	—	53.3	25.4	36.8	38.1	—	8.1	0	“	Christian parents. <sup>2</sup>
4 5	M	6.8	43.2	17.8	35.6	37.6	—	8.4	0	Very healthy.	Lower class.
5 6	F	—	58.4	21.6	40.6	39.3	—	8.9	0	Sits alone.	Coolie.
6 7	M	—	41.9	—	—	26.7	—	—	0	Unhealthy. Hydrocephalous.	Upper class.
7 8	F	—	48.3	22.9	30.5	49.5	—	8.9	0	Sickly. Boils on head.	Boat woman's child. <sup>1</sup>
8 9	M	—	58.4	27.9	38.1	35.6	—	7.6	0	Healthy.	Christian parents. <sup>2</sup>
10 10	F	—	76.2	30.5	38.1	36.8	—	7.0	0	“	Lower class.
11 11	F	—	52.7	25.4	34.3	37.5	—	8.9	0	“	Coolie.
12 12	M	6.6	63.5	35.6	40.6	44.5	—	11.4	0	“	Upper class.
13 13	M	—	58.4	30.5	43.2	41.9	—	10.2	0	“	Coolie.
14 14	F	—	62.2	25.4	—	44.5	—	11.4	4	“	Artisan.
15 15	I yr.	—	55.9	25.4	—	40.6	—	8.9	6	Sickly. Child in hospital for wasting disease.	Middle class.
16 16	M	—	71.1	34.3	47.0	45.7	—	13.3	8	Fat and healthy. Does not talk.	Coolie.
17 17	F	—	66.0	30.5	43.2	43.2	—	10.2	4	“	Upper class.
18 18	1 1/2 “	M	—	50.8	31.1	45.7	45.7	33.0	7.0	“	Christian middle class.
19 19	1 1/2 “	F	6.3	68.6	27.9	48.3	43.2	25.4	10.2	“	Lower class.
20 20	2 yrs.	M	—	76.2	33.0	52.1	47.0	31.8	14.0	“	Christian.
21 21	2	M	—	53.3	22.9	38.1	39.3	—	10.2	“	Middle class.
22 22	2	F	—	76.2	35.6	45.7	47.6	—	12.7	7	“
23 23	2	F	—	91.4	35.6	41.9	43.2	—	11.4	12	“
24 24	2 1/2 “	M	—	85.1	33.0	47.6	48.3	38.1	14.0	20	“
25 25	2 1/2 “	M	13.3	85.1	—	49.5	45.7	38.1	14.0	20	“
26 26	3	F	—	—	—	43.2	40.6	—	10.2	20	“
27 27	3	F	—	76.2	30.5	48.3	45.7	—	12.7	20	“
28 28	3	M	—	66.0	30.5	43.2	43.2	—	10.2	20	“
29 29	3	M	—	81.3	35.6	45.7	43.2	—	13.3	22	“
30 30	4	M	—	94.0	38.1	50.8	45.7	43.2	15.9	—	“
31 31	4	F	—	100.3	38.1	49.5	50.2	43.2	14.9	—	“
32 32	4	F	—	78.7	35.6	48.3	50.8	—	15.2	22	Fat and healthy.

<sup>1</sup> Lowest class. <sup>2</sup> Father a pharmacist, mother assists in dispensary.

TABLE I.—CHINESE OF CANTON.—Continued

AGE.	SEX.	WEIGHT (kg.)	HEIGHT (cm.)	Spine (cm.)	Chest (cm.)	Skull (cm.)	Arm (cm.)	Foot (cm.)	No. OF TEETH.	PARENTHAGE.	
										Healthy.	“
33	4 yrs.	F	—	73.7	—	44.5	—	12.7	—	Boat woman's child.	Lowest class.
34	4 “	M	—	—	58.4	48.3	—	15.2	22	—	—
35	4 “	F	—	71.1	30.5	45.7	43.2	—	11.4	Hunchback.	—
36	4 “	F	—	71.1	30.5	45.1	45.1	—	10.2	20	Small & thin.
37	4 “	F	—	76.2	25.4	44.5	30.5	10.2	20	Has itch.	—
38	4 “	F	—	83.8	—	43.2	43.2	10.2	20	Healthy.	Lower class.
39	4 “	F	—	76.2	30.5	43.2	45.7	—	12.7	16	Middle class.
40	4 “	F	—	78.7	30.5	40.6	43.2	—	12.7	20	Skin disease.
41	4½ “	M	13.2	94.6	35.6	55.9	53.3	39.3	14.6	Healthy.	Christian. Middle class.
42	5 “	F	—	81.3	38.1	43.2	45.7	—	12.7	18	Upper class.
43	5 “	F	—	83.8	40.6	48.3	48.3	—	15.2	24	—
44	5 “	F	—	81.3	35.6	45.7	45.7	—	12.7	20	—
45	5 “	F	—	91.4	40.6	45.7	50.8	40.6	15.2	—	—
46	5 “	M	—	81.3	40.6	44.5	45.7	—	12.7	—	—
47	5 “	M	—	76.2	43.2	41.9	48.3	—	12.7	—	—
CHINESE OF WUHU											
48	11 ms.	M	5.4	—	—	—	—	—	0	Sickly.	Merchant.
49	16 “	F	7.3	—	—	—	—	—	10	“	“
50	16 “	F	9.1	—	—	—	—	—	16	Christian.	Father a preacher.
51	3 yrs.	M	14.1	—	—	—	—	—	20	Servant.	“
52	3 “	F	—	—	—	—	—	—	20	Merchant.	“
53	3 “	F	11.5	—	—	—	—	—	22	“	“
54	4 “	M	12.7	—	—	—	—	—	20	“	Father a policeman.
55	4 “	M	13.3	—	—	—	—	—	22	“	Farmer.
56	5 “	M	16.9	—	—	—	—	—	24	“	Merchant.
57	5 “	M	13.3	—	—	—	—	—	22	“	Father a policeman.
58	5 “	F	15.1	—	—	—	—	—	21	“	Farmer.
59	6 “	M	16.9	—	—	—	—	—	22	“	Merchant.
60	6 “	F	13.9	—	—	—	—	—	22	“	“
61	7 “	M	16.9	—	—	—	—	—	26	“	“

TABLE II.—JAPANESE (ALL OF NAGASAKI EXCEPT 1, 2, 3, 4, AND 12)

AGE.	SEX.	WEIGHT (kg.)	HEIGHT (cm.)	SPINE (cm.)	Chest (cm.)	Skull (cm.)	ARM (cm.)	FOOT (cm.)	No. OF TEETH.	PARENTHESIS.	
										Merchant.	Blacksmith.
1	6 ds.	F	2.5	45.7	21.6	—	34.3	—	8.1	0	
2	3 ms.	F	5.4	55.9	22.9	46.4	41.9	27.3	8.9	0	
3	9 "	M	—	59.7	24.1	48.3	41.9	21.6	9.5	0	
4	1 yr.	F	—	68.6	28.6	45.7	43.2	25.4	—	2	
5	20 ms.	M	—	54.6	27.9	40.6	36.8	28.6	9.5	6	
6	2 1/4 yrs	F	8.8	83.8	33.0	52.1	45.7	32.4	12.7	12	
7	2 1/2 "	M	—	88.3	30.5	45.7	48.3	26.7	13.3	20	
8	3 "	M	9.9	82.6	30.5	47.0	45.7	25.4	12.7	13	
9	3 "	F	13.2	77.5	33.0	47.6	43.2	27.3	12.7	12	
10	4 "	F	11.2	76.2	30.5	50.2	47.6	29.2	12.7	14	
11	4 1/4 "	M	15.8	101.6	38.1	55.2	49.5	33.0	16.5	16	
12	5 "	F	—	94.0	38.1	55.9	48.3	40.6	16.5	—	
13	5 "	F	17.5	103.5	38.1	54.6	52.1	31.8	16.5	20	
14	5 "	M	17.7	102.9	36.8	58.4	52.1	29.9	16.5	20	
15	5 "	M	—	112.4	43.2	59.7	53.3	43.2	15.9	20	
16	5 "	F	17.7	90.2	38.1	50.8	45.1	37.5	14.0	18	
17	5 "	M	17.7	96.5	33.0	50.8	45.7	27.3	14.0	18	
18	5 1/4 "	F	18.1	96.5	38.1	61.0	50.2	39.3	15.2	18	
19	5 1/2 "	M	18.6	99.1	34.3	50.8	46.4	29.9	14.6	18	
20	6 "	F	17.7	106.7	38.1	54.6	48.3	33.0	17.8	24	
21	5 1/2 yrs	F	15.0	99.1	40.0	53.3	48.3	30.5	17.1	—	
22	6 "	F	15.9	106.7	41.9	53.3	49.5	31.8	17.8	24	

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twenty-eight recorded in which it is incomplete after the age of two and a half years. But the most remarkable phenomenon of this group is the precocity of the Chinese in the matter of the so-called six-year-old molars. The two six-year-old children observed each had two of these molars. Of six five-year-old children, one had one, one two, and two all four of the molars. Of ten four-year-olds, three had two molars and one had all four. Of the seven three-year-olds, two had already cut two of the permanent molars. The single seven-year-old boy whose teeth were examined not only had all of his six-year-old molars, but two of the so-called twelve-year-old molars. It will be seen by reference to the table that this precocity in the molars is equally marked at Canton in the extreme south and at Wuhu in the central valley of the Yang-tse.